# What is the definition of multi-morbidity in Bulgarian : a consensus procedure using Delphi-round and a forward, backward translation

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**FACULTÉ DE MÉDECINE**

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# THÈSE D'EXERCICE

## Pour le
## DOCTORAT DE MÉDECINE
## DE SPÉCIALITÉ MÉDECINE GÉNÉRALE

**Par**
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# What is the definition of multi-morbidity in Bulgarian;
# A consensus procedure using Delphi-round
# and a forward, backward translation.

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Résumé (français)
Introduction : Les patients consultant leur médecin généraliste présentent fréquemment plusieurs problèmes ou états morbides. L'Organisation Mondiale de la Santé (OMS) définit simplement la multimorbidité comme l'existence de deux ou plusieurs atteintes chroniques chez un même patient. Cette définition ne parait pas appropriée à la démarche holistique de prise en charge globale du patient par le médecin généraliste. Grâce à une revue systématique de la littérature, l'European General Practitioners Research Network (EGPRN) a produit une définition utilisable en pratique et en recherche de la multimorbidité.
Objectif : L'objectif était de traduire cette définition dans plusieurs langues européennes, dont le bulgare.
Méthode : Une procédure Delphi adaptée avec traduction Aller/Retour a été utilisée. Une traduction de l'Anglais au Bulgare a été soumise par procédure Delphi à un panel d'experts bulgares en soins primaires. La traduction retour a été réalisée en aveugle de l'original.
Résultats : Le panel d'experts répond aux critères d'inclusion. La traduction Bulgare a été validée unanimement au premier tour. La traduction retour en anglais a été produite.
Discussion : Le choix d'une méthode de traduction Aller/Retour par procédure Delphi adaptée avec exigence sur la qualité du panel d'experts, garantit une traduction bulgare de la definition de la multimorbidité fiable.

Summary (English)
Introduction: Patients coming to their family physician (FP) usually have more than one condition or problem. The World Health Organization (WHO) has simply defined multimorbidity as two or more chronic conditions existing in one patient. However, this definition seems inadequate for a holistic approach to patient care within Family Medicine. Using systematic literature review the European General Practitioners Research Network (EGPRN) developed a comprehensive definition of multimorbidity.
Objective: For practical and wider use, this definition had to be translated into other languages, including Bulgarian.
Method: A Delphi method adapted for a Forward-Backward translation was used. The translation from English to Bulgarian was submitted by Delphi procedure to a panel of Bulgarian experts in primary care. Backward translation was performed with a blind back-translation principle.
Results: The inclusion criteria of panel were kept. The Bulgarian translation was confirmed unanimously in one Delphi round. The Backward English translation was produced and agreed by the FPDM's scientific committee.
Discussion: The quality of the panel of experts FPs ensured a validated and reliable Bulgarian translation for the multimorbidity definition.

## Introduction

The concept of multimorbidity was first published in 1976 in Germany (1) and remained almost entirely restricted to German publications for 14 years. Between 1976 and 1990 only 72 articles used the term multimorbidity in their text, of which 66 were written in German. In 1990 the concept became internationally recognized through research (2).

The concept of multimorbidity was an addition to the concept of comorbidity. Comorbidity was defined as any disease or risk factors that could interact with one main disease with the effect of making it worse (3) (4) (5). Multimorbidity has been defined by the World Health Organization (WHO) as people being affected by two or more chronic health conditions (6). The intention of the WHO was to look at all conditions in one individual that could impact on that individual's global health status. However the word 'condition' was not sufficiently clear for practical purposes (for instance, whether a treated disease was a 'condition' in this sense), and could lead to numerous interpretations.

Multimorbidity is a particularly interesting concept for Family Practice, given the increasing prevalence of chronic illness in the aging population across developed countries. It is closely related to a global view of the patient, which is a core competency of Family Practice, as defined for instance by the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (WONCA) (7). Multimorbidity is an interesting concept, when applied to patients in practice, as it gives an overview of all the factors that could lead to frailty (8) (9). Frailty, however, is another new concept whose consensual definition is discussed further on (10) (11).

Since the available, WHO definition of multimorbidity was inadequate for practical use because of its inaccuracy and because of existence of its various definitions in literature. Thus a new, clear and more comprehensive definition has been enhanced by the European General Practice Research Network (EGPRN) workgroup (12). The main aim of the whole project was to achieve a more usable definition of multimorbidity in order to advance research in this field throughout Europe. This kind of definition would greatly help researchers in Family Practice to investigate the complexity of patients' conditions and their overall impact on patients' health. Also, it could be an additional tool for Family Physicians (Fps) which would enable them to identify frail patients and work on the prevention of their decompensation.

A research team, including 9 national groups, all-active within the EGPRN, has created a research community for the purpose of clarifying the concept of multimorbidity for FM throughout Europe (13). An initial review, presented in an EGPRN meeting in spring 2011 (14), identified more than one hundred different definitions used by academic researchers. Such a large number of definitions added more confusion than clarification to the discussion. It led the group to the production of a comprehensive definition of multimorbidity through a systematic review of literature, in which all multimorbidity criteria were scanned and classified by theme (15). That comprehensive definition of multimorbidity was published after a careful check of its wording and meaning by a working group of three MD researchers from the Irish College of General Practitioners, an MD researcher from the Malta College of Family Doctors and two native English speaking official translators from the University of Brest (France) (15).
This definition had then to be translated into most European languages for use in further

collaborative research. It has been previously demonstrated that translating definitions, index or scales is a risky task in medical science (16). The aim of this article was to achieve the Bulgarian version of this definition .

## Method

1. Definition

Original definition achieved by EGPRN team was: Multimorbidity is defined as any combination of chronic disease with at least another disease (acute or chronic) or a bio psychosocial factor (associated or not) or a risk factor. Any bio psychosocial factor, any risk factor, the social network, the burden of diseases, the health care consumption and the patient's coping strategies may function as modifiers. Multimorbidity may modify the health outcomes and lead to an increased disability or a decreased quality of life or frailty.

2. Translation

For the translation to retain the same meaning as the original, a Forward-Backward translation was conducted following a formal consensus method: Delphi method. Formal consensus is the most appropriate method for little investigated subject. Delphi method, reliable and efficient is used frequently in health care to reach consensus in defined clinical areas(17) (18). It is a systematic interactive method which involves a panel of experts using iterative procedures. It can be done quickly to make a single convergent final recommendation. This process requires following four rules: anonymity of participants (ensures responses reliability and avoids contamination), iteration (allows participants to refine their views in the light of the progress of the group's work), control feedback (under the responsibility of national investigator (NI)), statistical aggregation of group's responses to allow a quantitative and qualitative analysis of the data.

3. Consents and anonymity

The NI asked the participants for their signed consent, anonymized the expert responses and delivered an identification number later identification. The name of each expert was not transmitted to other. Only NI's consent was sent to the investigator team. As the study involved no patient, it did not require an ethics committee's decision.

4. Participants

Pilot Team (PT): The EGPRN French team was familiar with Delphi methodology. It requested to the national investigator his consent and voluntary participation in the study and an absence of conflict of interest. It ensured that the whole process followed the protocol. It did not took part in the translation phases or in Delphi rounds. The Forward-Backward translation had to be validated by the daily board of the study, composed of members of the European General Practice Research Network (EGPRN) all active within the research process.

National Investigator (NI): The NI was in charge of recruiting translators and experts. He acted between each phase and between two Delphi rounds. He did not act when a Delphi round was running.

Translators: The NI selected four translators to make up two translation teams. Translators had to be knowledgeable about health care terminology. The forward translation team

involved one member of the FP's research group and one official translator. Bulgarian had to be their native language. The Backward translation team involved one (or two) FP(s) and one official Bulgarian/English translator. The two teams should not have involved the same person.

Experts panel: Initially, 20 to 30 experts were recruited in order to keep at least 15 participants until every round's end. The selection criteria for every expert were: being native to Bulgaria and Bulgarian was his mother tongue; being English speaker; being in FP practice. Over half had to have teaching or research activities. In order to assess the representativeness of the panel by its diversity, the experts informed their gender, area of practice, years of practice and publications.

5. Forward Translation

The PT sent the multi-morbidity original English definition to the NI who sent it to the forward translation team. This team translated multi-morbidity definition from English to Bulgarian aiming to retain the same meaning as the original.

6. Delphi rounds

At the beginning of the first round, NI sent by mail the original English version and the translated version in Bulgarian. Fps experts received records individually. NI did not use mailing list in order to assure anonymity which increased responses reliability and to avoid contamination (discussion between experts).

Experts expressed their level of agreement on each proposal by using a Likert scale. This Likert scale was an agree/disagree scale of 1 to 9, symmetric, odd, that measured the intensity of their feelings on each proposal, taking into account the maintenance of the meaning between the original and the translation proposal, the ergonomics and the ease of understanding. Experts rated the proposal from 1 (absolutely no agreement) to 9 (fully agreement) and had to comment when rating less than 7. They were not aware of the following interpretation of data processing. Consensus was defined for an excerpt's translation when it was rated 7 or above by over 70% of the panel, so it was accepted directly and did not enter the following rounds : this definition

of consensus in a Delphi round is the strongest possible definition, according to the Delphi methods, and the RAND UCLA method that is a modified Delphi technique

(19) (20). If proposal did not reach consensus, the NI and the forward official translator synthesized experts' comments to propose a new translation proposal for this excerpt. Time between two rounds had to be less than four weeks. The following round began when the NI sent to the experts separately for each excerpt that did not reach consensus: the original English version, the unaccepted proposal, all the experts' commented on this proposal, the new proposal. Experts rated the new proposal in the same way as for the first round. The following rounds rolled out in an identical manner. This process was repeated until all excerpts find a consensual translation. The number of rounds was not limited.

At the Delphi process end, there was a consensus on a final Bulgarian definition of multi-morbidity.

7. Backward translation

NI sent the final Bulgarian version of multi-morbidity definition to the backward translation team who had to translate it into English. The translators should not have the knowledge of the original version (blind-back translation principle). Finally, he sent the Backward English version to the PT.

**Results**

1. Forward
The NI submitted the questionnaire to one official translator and one FP researcher. A consensual forward translation of multimorbidity definition was proposed (table 2). The native language of translators was Bulgarian and they were knowledgeable about health care terminology.

2. Panel
The NI had particularly sought to obtain the consents of experts as well as the characteristics of each (table 1).
Thirty FPs were recruited for the Delphi Process. They were all FPs in family practice. The experts consisted of 36,67 % male and 63,33 % female. Their age was distributed as follows: Between 20-30, 2,33%; 30-40, 10%; 40-50, 40%; 50-60, 40% ; 60-70, 3,33 %, with average age of 47,03 years.
The expert's level of English was evaluated. Among the 30 FPs, 16,67% were basic users, 46,67% independent and 36,67% proficient.
Clinical experience was analyzed by year of activities: 0-10 years (6,67%); 11-20 26;67%; 20-30 40%; 30-40 3,33%, with average tear of activities of 21,8 years.
Among the 30 FPs experts, 16,67 % had publications, 80 % of them had publications both in English and Bulgarian. The others worked in general medical practice.

3. Delphi Process
The NI oversaw but did not take part of the rounds. The NI had also conformed to the procedure of the Delphi round: the proposed translation was sent to the experts, using a Likert scale in 9 points, in separated mails. There was only one Delphi round to validate the Bulgarian forward of multi-morbidity definition.
The definition was validated with 7 or above by 29 experts, only 1 expert rated the definition at 6. Bulgarian definition was rated by 7 or above by over 70 % of the experts panel.
6 experts had given comments for statements. 3 of them are related to the term « frailty ». 3 of them were grammatical rewording suggestions. 1 expert have found the definition too heavy and cumbersome.
Bulgarian definition was accepted directly at the first round.

4. Backward
The Bulgarian version obtained was translated in English by two independents translators, which gave us one backward blind translation (table 3). The native language of the second translator was Bulgarian and he was knowledgeable about health care terminology.

**Table 1. Expert Panel Characteristics**

| Participant Number | Gender<br>M Male<br>F Female | Age | Years in Practice | English Level<br>A Basic User<br>B Independent<br>C Proficient | English Publications | Other Publications | Lickert Result First round |
|---|---|---|---|---|---|---|---|
| 1 | M | 45 | 18 | B | 0 | 0 | 9 |
| 2 | M | 40 | 16 | C | 3 | 10 | 9 |
| 3 | F | 52 | 27 | B | 0 | 0 | 9 |
| 4 | F | 53 | 29 | A | 0 | 0 | 7 |
| 5 | F | 57 | 32 | A | 0 | 0 | 6 |
| 6 | F | 57 | 30 | B | 0 | 0 | 9 |
| 7 | F | 37 | 14 | B | 0 | 0 | 9 |
| 8 | M | 48 | 22 | A | 0 | 0 | 9 |
| 9 | M | 55 | 20 | B | 0 | 0 | 8 |
| 10 | F | 44 | 20 | B | 0 | 0 | 9 |
| 11 | M | 40 | 15 | B | 0 | 0 | 8 |
| 12 | F | 53 | 31 | A | 0 | 0 | 9 |
| 13 | F | 48 | 24 | B | 0 | 0 | 8 |
| 14 | F | 51 | 26 | A | 0 | 0 | 8 |
| 15 | F | 48 | 22 | A | 0 | 0 | 8 |
| 16 | F | 51 | 26 | B | 2 | 3 | 8 |
| 17 | M | 45 | 20 | B | 0 | 0 | 8 |
| 18 | M | 39 | 14 | B | 0 | 4 | 9 |
| 19 | F | 42 | 17 | B | 0 | 0 | 8 |
| 20 | M | 55 | 35 | C | 0 | 0 | 9 |
| 21 | F | 29 | 4 | C | 1 | 1 | 8 |
| 22 | M | 55 | 28 | C | 2 | 4 | 9 |
| 23 | F | 47 | 23 | C | 0 | 0 | 7 |
| 24 | F | 28 | 4 | B | 0 | 0 | 8 |
| 25 | F | 39 | 15 | B | 0 | 0 | 7 |
| 26 | M | 41 | 15 | A | 0 | 0 | 8 |
| 27 | F | 44 | 22 | A | 0 | 0 | 8 |
| 28 | F | 54 | 29 | A | 0 | 0 | 8 |
| 29 | M | 51 | 26 | A | 0 | 0 | 8 |
| 30 | F | 63 | 30 | A | 0 | 0 | 8 |

## Table 2. English Original and Bulgarian definition

| English original | NATIVE proposed last round |
|---|---|
| Multimorbidity is defined as any combination of chronic disease with at least one other disease (acute or chronic) or bio-psychosocial factor (associated or not) or somatic risk factor.<br><br>Any bio-psychosocial factor, any somatic risk factor, the social network, the burden of diseases, the health care consumption and the patient's coping strategies may function as modifiers (of the effects of Multimorbidity).<br><br>Multimorbidity may modify the health outcomes and lead to an increased disability or a decreased quality of life or frailty. | Полиморбидност се определя като всяка комбинация от хронично заболяване, с поне едно друго заболяване (остро или хронично) или свързан или не със заболяването био-психо-социален фактор или друг соматичен рисков фактор.<br>Всеки био-психо-социален фактор, всеки рисков фактор, социалната среда, тежестта на заболяванията, използването на здравни услуги и стратегии на пациента за справяне могат да оказват влияние върху ефектите на полиморбидността.<br>Полиморбидността може да доведе до промяна на очакваните резултати и до по-висока степен на инвалидност, понижено качество на живот или слабост. |

## Table 3. Original English definition and the backward definition

| English original | NATIVE back translation to English |
|---|---|
| Multimorbidity is defined as any combination of chronic disease with at least one other disease (acute or chronic) or bio-psychosocial factor (associated or not) or somatic risk factor.<br><br>Any bio-psychosocial factor, any somatic risk factor, the social network, the burden of diseases, the health care consumption and the patient's coping strategies may function as modifiers (of the effects of Multimorbidity).<br><br>Multimorbidity may modify the health outcomes and lead to an increased disability or a decreased quality of life or frailty. | Multimorbidity is defined as any combination of a chronic disease combined with at least one other disease (acute or chronic) or bio-psychosocial factor (connected or not with the disease) or somatic risk factor.<br>Any bio-psychosocial factor, any risk factor, the social environment, the burden of the diseases, the health care consumption and the patient's strategies for coping may modify the effects of multimorbidity.<br><br>Multimorbidity can lead to a change of the health outcomes and to a higher level of disability, decreased quality of life or frailty. |

**Discussion**

The cross-cultural approach was complex. It integrated understanding of a cultural, linguistic and ethnic background.
This methodological approach was focused on translation, adaptation and cross-validation of the multimorbidity definition in Bulgarian.

Some articles were added to the original translation ("a chronic disease" instead of "chronic disease") with the same meaning. The group concluded that there was no change in meaning. There was a change concerning 'connection' instead of 'association' (bio psychosocial factors "connected or not with the disease" instead of "associated or not with the disease"). But there is only one word in Bulgarian to express those two meanings and the group concluded that there was no change of meaning. The "somatic risk factors" were changed to "risk factors" as risk factors are always understood as somatic by Bulgarian FPs. « Network was changed into 'social network', when describing the patient's environment, to be sure the concept was as broad as in the original English definition. In this way, they encompassed, in Bulgarian, not only family and friends (which is the meaning of network in Bulgarian) but also the social infrastructures surrounding the patient, as was intended in English. « May modify the health outcomes » was modified to "Multimorbidity can lead to a change in the health outcomes". This phrasing is less emphatic than the original. Nevertheless, the research group did not think that the meaning was radically changed and kept the Bulgarian version.

The Forward-Backward was achieved according with protocol. The power of the study was based on its methodology (Delphi process) and the selection of FPs experts. Experts was sufficient (30 FPS) according Delphi procedure. Panel was varied. Sample was reasoned according to gender, age and area of practice. Each expert was competent in English.
The Delphi process with FPs experts aimed to evaluate the Bulgarian's translation and integrate idiomatic expressions, colloquial health phrase and emotional terms in common use. Each expert expressed his judgment individually and anonymously. The lack of face-to-face meeting avoided the " opinion leader " effect and limits conflicts of interest. The procedure allowed to evaluate a question quickly and cheaply without geographical constraints.
The forward translation was confirmed unanimously in one Delphi round in two weeks. This allowed absence of attrition bias.
The Likert scale is an international validated, qualitative and ordinal scale. The ranking 7 or above guaranteed an adherence to the translation.
Forward/Backward is an international validated process of translation and adaptation of instruments. The Forward translation process aimed to respect the faithfulness of meaning in English and Bulgarian. A specific careful was paid to choose FPs researcher and certified bilingual translator knowledgeable about health care terminology.

In order to reduce bias:
Confusion bias: to ensure homogeneity,, a back translation was necessary. The back translator was working blind and was an academic official translator.
Information bias: The NI was a Family Physician invested in EGPRN, was FPs researcher and was the organizer of the Delphi round according to protocol. At each step of the protocol, the NI transmitted the results to the pilot team. In addition, every six months, the EGPRN team met to ensure the lowering of the information bias.
Selection bias: All type of FPs (according to the sample's characteristics) were represented.

## Conclusion

The translation, adaptation and validation of an instrument for cross-cultural research required a rigorous methodological approach. The translation realized in Bulgaria obtained a consensus with one round Delphi unanimously approved. A meta-ethnographic study will verify its validity, ensuring that the meaning of every translation remains the same compared to the original English version.

The implementation of the new definition is intended to help European FPs to identify multimorbid patients. It could be useful for other long-term care physicians like geriatricians. It could also be of importance to policy makers to plan an optimal management of patients, and to lower the burden of multimorbidity.

This definition could be useful for teaching. It provides an overview of the subject in opposition to classical approach organ by organ. The European translations enable the EGPRN research team to proceed to the next step, which is qualitative research, in order to find the value added by FPs to the concept of multi-morbidity.

**Bibliographie**


1. Brandlmeier P. Multimorbidity among elderly patients in an urban general practice. ZFA Z Für Allg. 1976;52(25):1269-75.

2. Heuft G. Future research perspectives of a psychoanalytical gerontopsychophysiology--personality and the aging process. Z Für Gerontol. 1990;23(5):262-6.

3. Starfield B. Global health, equity, and primary care. J Am Board Fam Med JABFM2007;20(6):511-3.

4. Beasley JW, Starfield B, van Weel C, Rosser WW, Haq CL. Global health and primary care research. J Am Board Fam Med JABFM2007;20(6):518-26.

5. Boyd CM, Shadmi E, Conwell LJ, et al. A pilot test of the effect of guided care on the quality of primary care experiences for multimorbid older adults. J Gen Intern Med 2008;23(5):536-42.

6. World Health Organization. Primary Health Care Now More Than Ever The World Health Report 2008 [Internet]. World Health Organization; 2008 [cité 3 févr 2015]. Disponible sur: http://www.who.int/whr/2008/whr08_en.pdf

7. EURACT. the european definition of general practice/family medecine [Internet]. WONCA Europe; 2005 [cité 3 févr 2015]. Disponible sur: http://www.woncaeurope.org/sites/default/files/documents/Definition%20EURACTshort%20version.pdf

8. Fried LP, Ferrucci L, Darer J, Williamson JD, Anderson G. Untangling the concepts of disability, frailty, and comorbidity: implications for improved targeting and care. J Gerontol A Biol Sci Med Sci 2004;59(3):255-63.

9. Abellan van Kan G, Rolland YM, Morley JE, Vellas B. Frailty: toward a clinical definition. J Am Med Dir Assoc 2008;9(2):71-2.

10. Gobbens RJJ, van Assen MALM, Luijkx KG, Wijnen-Sponselee MT, Schols JMGA. Determinants of frailty. J Am Med Dir Assoc. juin 2010;11(5):356-64.

11. Morley JE, Vellas B, van Kan GA, et al. Frailty consensus: a call to action. J Am Med Dir Assoc 2013;14(6):392-7.

12. Hummers-Pradier E, Beyer M, Chevallier P, et al. Series: The research agenda for general practice/family medicine and primary health care in Europe. Part 4. Results: specific problem solving skills. Eur J Gen Pract 2010;16(3):174-81.

13. Le Reste JY, Nabbe P, Lygidakis C, et al. A research group from the European General Practice Research Network (EGPRN) explores the concept of multimorbidity for further research into long term care. J Am Med Dir Assoc 2013;14(2):132-3.

14. Le Reste JY. The FPDM (family practice depression and Multimorbidity) Study: Project for systematic review of literature to find criteria for multimorbidity definition. Eur J Gen Pract 2011;17(3):180.

15. Le Reste JY, Nabbe P, Manceau B, et al. The European General Practice Research Network presents a comprehensive definition of multimorbidity in family medicine and long term care, following a systematic review of relevant literature. J Am Med Dir Assoc2013;14(5):319-25.

16. Ramirez M, Teresi JA, Holmes D, Gurland B, Lantigua R. Differential item functioning (DIF) and the Mini-Mental State Examination (MMSE). Overview, sample, and issues of translation. Med Care. 2006;44(11 Suppl 3):S95-106.

17. Okoli C, Pawlowski SD. The Delphi method as a research tool: an example, design considerations and applications. Inf Manage2004;42(1):15-29.

18. Skulmoski GJ, Hartman FT, Krahn J. The Delphi Method for Graduate Research. J Inf Technol Educ 2007;6:1-21.

19. Battles JB, Cleeman JI, Kahn KL, Weinberg DA. Introduction: From science to implementation: The Agency for Healthcare Research and Quality's program to prevent healthcare-associated infections-results and lessons learned. Am J Infect Control 2014;42(10 Suppl):S189-90.

20. Bourrée F, Michel P, Salmi LR. Méthodes de consensus : revue des méthodes originales et de leurs grandes variantes utilisées en santé publique. Rev d'Épidémiologie Santé Publique 2008;56(6):415-23.

LUCAS Aldric - What is the definition of multi-morbidity in Bulgarian;
A consensus procedure by Delphi-round and Forward, Backward translation.
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ABSTRACT:

Introduction : Les patients consultant leur médecin généraliste présentent fréquemment plusieurs problèmes ou états morbides. L'Organisation Mondiale de la Santé (OMS) définit simplement la multimorbidité comme l'existence de deux ou plusieurs atteintes chroniques chez un même patient. Cette définition ne parait pas appropriée à la démarche holistique de prise en charge globale du patient par le médecin généraliste. Grâce à une revue systématique de la littérature, l'European General Practitioners Research Network (EGPRN) a produit une définition utilisable en pratique et en recherche de la multimorbidité.
Objectif : L'objectif était de traduire cette définition dans plusieurs langues européennes, dont le bulgare.
Méthode : Une procédure Delphi adaptée avec traduction Aller/Retour a été utilisée. Une traduction de l'Anglais au Bulgare a été soumise par procédure Delphi à un panel d'experts bulgares en soins primaires. La traduction retour a été réalisée en aveugle de l'original.
Résultats : Le panel d'experts répond aux critères d'inclusion. La traduction Bulgare a été validée unanimement au premier tour. La traduction retour en anglais a été produite.
Discussion : Le choix d'une méthode de traduction Aller/Retour par procédure Delphi adaptée avec exigence sur la qualité du panel d'experts, garantit une traduction bulgare de la definition de la multimorbidité fiable.

Introduction : Patients coming to their family physician (FP) usually have more than one condition or problem. The World Health Organization (WHO) has simply
defined multimorbidity as two or more chronic conditions existing in one patient. However, this definition seems inadequate for a holistic approach to patient care within Family Medicine. Using systematic literature review the European
General Practitioners Research Network (EGPRN) developed a comprehensive definition of multimorbidity.
Objective : For practical and wider use, this definition had to be translated into other languages, including Bulgarian.

Method: A Delphi method adapted for a Forward-Backward translation was used. The translation from English to Bulgarian was submitted by Delphi procedure to a panel of Bulgarian experts in primary care. Backward translation was performed with a blind back-translation principle.
Results: The inclusion criteria of panel were kept. The Bulgarian translation was confirmed unanimously in one Delphi round. The Backward English translation was produced and agreed by the FPDM's scientific committee.
Discussion: The quality of the panel of experts FPs ensured a validated and reliable Bulgarian translation for the multimorbidity definition.

**MOTS CLES** :
MULTIMORBIDITY ; FAMILY MEDICINE ;

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